

# Workshop: Certification for Engines for Specially Constructed Vehicles



Air Resources Board Auditorium  
El Monte, California  
July 28, 2011  
10:00 am (PDT)

## Agenda

- Background and Purpose
- Changes since May Workshop
- Description of Proposed Draft Regulations and Certification Procedures
- New Certification and Vehicle Registration
- Next Steps

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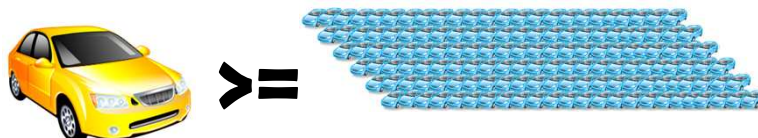
## Background and Purpose



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## Kit Cars Can Be High-Emitters

- Many use uncontrolled crate engines
- An uncontrolled gas engine can emit 60-200 times the smog-forming emissions of a vehicle meeting modern standards



1 Uncontrolled Vehicle

60-200 Modern Vehicles

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## Current Definition

### California Vehicle Code 580

#### Specially Constructed Vehicles:

- a vehicle built for private use, not for resale, and not constructed by a licensed manufacturer or remanufacturer.
- may be built from:
  - (1) a kit;
  - (2) new or used, or a combination of parts; or
  - (3) a vehicle reported for dismantling\*, which, when reconstructed, does not resemble the original vehicle



\*as required by CA Vehicle Code Section 5500 or 11520

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## Purpose for Rulemaking

- ARB Certification is based on whole vehicle, not engine
  - Create a certification path for clean, light-duty engines, intended for use in kit cars
- Want to give hobbyists the ability to choose cleaner engines
- Want to ensure engines being installed per the manufacturers instructions
- Allow for legal registration of kit cars in years the SB100 certificates of sequence are used up

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## Changes Since May Workshop

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### Turn Key Kit Cars

- Turn-key assemblers building new kit cars for resale, often with uncontrolled crate engines
- Creating a path for turn key builders could create loop holes for small manufacturers
  - Concern re: conflicting with NHTSA safety requirements
- CHP unwilling to issue VINs for these manufacturers

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## Kit Cars Built by Installers

- **Solution:** Require shops helping hobbyists install engines to install per manufacturer's instructions and create paper trail



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## Draft Regulations and Certification Procedures



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## Overview


- Creates viable path for engine manufacturers to certify clean, modern engines
  - To LEV II LEV standards 2012 through 2014
  - To LEV III ULEV standards 2015 and beyond
- New option for hobbyists, installers to use a certified engine package

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## Engine Certification Proposal- Emissions Testing


- Engine manufacturers chooses worst case vehicle
  - Based on highest test weight and N/V ratio
- Exhaust Testing: FTP, SFTP, HWY NOx, 50F
  - Must meet current standard (LEV II LEV now)
  - 50F test required to limit cold start emissions
- Evaporative Testing: Diurnal, hot soak, running loss, and ORVR
  - Must meet current evap standard
- Emissions testing NOT required for installers or hobbyists

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## Engine Certification Proposal - Carryover Data

- If manufacturer would like to create engine package from existing certified vehicle, carryover data would be allowed, if identical engine configuration is maintained



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## Engine Package Requirements

- Package Must Include:
  - Engine and Controller with software and calibration
  - OBD II System, with back off points
    - No evap leak check monitoring, no transmission component monitoring,
    - Relaxed misfire monitoring, cylinder air-fuel imbalance monitoring, cold start monitoring
  - Exhaust emission control system including intake and exhaust manifolds, sensors, mass air flow housing
  - Canister, purge valve, purge control logic and flow diagnostic

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## Additional Package Requirements

- Vehicle parameters (max weight, etc.)
- Notice explaining ARB's authority
- Engine owner's manual and Installation Guidance
  - Tell hobbyist/installer how to install engine properly
  - Evaporative controls, fuel tank size and materials, hoses and connectors, fuel neck and ORVR compatability, catalyst and O2 sensor locations, air intake/mass air flow location restrictions, gas cap

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## Additional Package Requirements: Labeling

- Must conform with LEV Vehicle Labeling Standards (no EP Label Required)
- Label included with engine package, detailing max curb weight, N/V, frontal area, fuel tank capacity
- Must include statement: "This engine is only for use in a Specially Constructed Vehicle, as defined in California VC Section 580."
- Label Placement: readily visible location
  - Would a specific location (e.g., under hood) be better, or do hobbyists/installers need flexibility?



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## Additional Package Requirements: Warranty Provisions



- Engine manufacturer must offer defects and performance warranties
  - Similar to those for new cars
  - 3 years or 50,000 miles (7 years or 70,000 miles for high-priced parts)
  - Begins on date of vehicle registration or 2 years after engine purchase date, whichever is earlier

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## Additional Package Requirements: Warranty Provisions (cont.)

- Warranty card
- Emissions control system warranty statement
- Proper use and maintenance
- Warranty repairs
  - Repair at a warranty station (facility authorized by the manufacturer)
  - No charges for diagnostics
  - Manufacturer liable for damages to other vehicle components in cases of warranted failures
- Reporting requirements



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## Warranty Card

- Provided in triplicate; to be completed by owner
  - one for engine manufacturer
  - one for assembler
  - one for owner (ultimate purchaser)
- Includes general terms of warranty and place for owner signature of acknowledgement
- Owner supplies pertinent engine/vehicle information
  - VIN, odometer reading, engine serial number, date of engine purchase and installation, assembler,

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## Additional Package Requirements: Recall Procedures

- Recall required if warranty failures exceed:
  - 4 percent of engine packages or parts covered under each Executive Order; or
  - 4 percent of engine packages or parts produced by the manufacturer



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## Installers

- Definition
  - Any person who installs a certified engine package in a specially constructed vehicle for compensation or consideration of value
- Ultimate purchasers are not considered to be installers



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## Installer Requirements

- Installing
  - Must install according to manufacturer provided instructions
- Reporting
  - Must report annual number of SPCNS built with certified engine packages
- Record Keeping
  - Must maintain writing and photographic records of each vehicle built with certified engine package

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## Installer Requirements cont'd

- Affidavit
  - Must sign affidavit provided by manufacturer that the engine package has been installed per manufacturer instructions
  - Provide to buyer and engine manufacturer
  - Will help enable warranty claims and recalls
- Installation Warranty
  - 1 year/12,000 mi warranty that the engine package was installed per the manufacturer instructions

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## Hobbyist Requirements

- Installs ARB certified engine package according to manufacturer's instructions
- Takes to referee station where referee inspects:
  - Ensures vehicle is low-pressure evap test capable
  - Functional Check Engine Light
  - Car built to manufacturer's specifications
- Submits warranty card to manufacturer
- Takes car for biennial smog check and low-pressure evap test

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## Vehicle Registration



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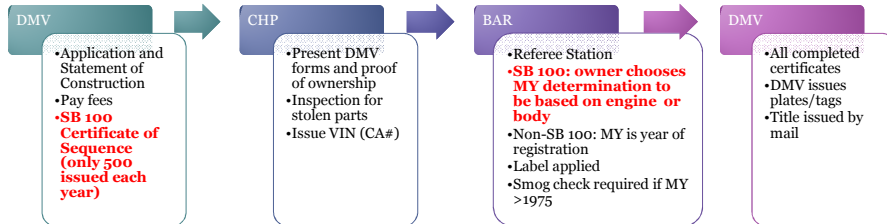
## Enabling Vehicle Registration

- ARB working with other State agencies to enable registration of vehicles with certified engine packages
  - CHP
  - DMV
  - BAR
    - ARB will post Executive Orders for certified engine packages on website so they are accessible to smog check technicians

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## SPCNS Vehicle Registration Process

- Current process (simplified):



- SB-100 process not affected by regulation; still an option
- Parts of process that owners of SPCNS with certified engine packages will be able to forego are shown in **red**

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## Next Steps



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## Next Steps

- Please provide comments to ARB by mid August on draft regulatory language and certification procedures
- Meetings with stakeholders to discuss proposal details
- ARB staff to add details (certification application, OBD application, etc.)
- ARB staff continue work with other affected agencies (DMV, BAR, etc.)
- October Staff Report
- December 7 or 8, 2011 Board Hearing

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